

## Phase change properties of BN doped GeSbTe films

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Boron Nitride (BN) doped GeSbTe films were grown by the ion beam sputtering deposition (IBSD). The in-situ sheet resistance data and the x-ray diffraction patterns showed the crystallization is suppressed due to the BN incorporation. The phase change speed in BN doped GeSbTe films were investigated using the static tester equipped with nanosecond pulsed laser. The phase change speed for BN doped GST films become faster than the corresponding values for an undoped GST film. The Johnson-Mehl-Avrami(JMA) plot and Avrami coefficient for laser crystallization showed that the change in growth mode during the laser crystallization is a most important factor for the phase change speed in the BN doped GST films. The JMA results and the atomic force microscopy (AFM) images indicate that the origin of the change in the crystalline growth mode is due to an increase in the number of initial nucleation sites which is produced by the incorporated BN. In addition, the retention properties for the laser writing/erasing are remarkably improved in BN doped GeSbTe films owing to the stability of the incorporated BN.